FOR
ISAIAH WATSON PROPERTY
ATIONAL CITY, ST. CLAIR COUNTY, ILLINOI:
TDD NO.: T05-9401-003
PAN: EIL0825SAA

ecology and environment, inc.
International Specialists in the Environment

SITE ASSESSMENT
FOR
ISAIAH WATSON PROPERTY
NATIONAL CITY, ST. CLAIR COUNTY, ILLINOIS
TDD NO.: T05-9401-003
PAN: EIL0825SAA

December 30, 1994

Prepared by: Patricia Zelly for M. Kalikowski Date: 12/30/94

Reviewed by: Mary J. Kuja Date: 12/30/94

Approved by: [signature] Date: 12/30/94

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International Specialists in the Environment

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1. INTRODUCTION

The United States Environmental Protection Agency (U.S. EPA) tasked the Ecology and Environment, Inc., (E & E) Technical Assistance Team (TAT) to conduct a site assessment (SA) for the Isaiah Watson (IW) site in National City, St. Clair County, Illinois. Work was initiated under Technical Direction Document (TDD) No. T05-9401-003 and completed under TDD No. T05-9410-096. The SA was performed in accordance with the National Oil and Hazardous Substance Pollution Contingency Plan (NCP) to evaluate threats to human health and the environment.

2. SITE BACKGROUND

2.1 SITE DESCRIPTION

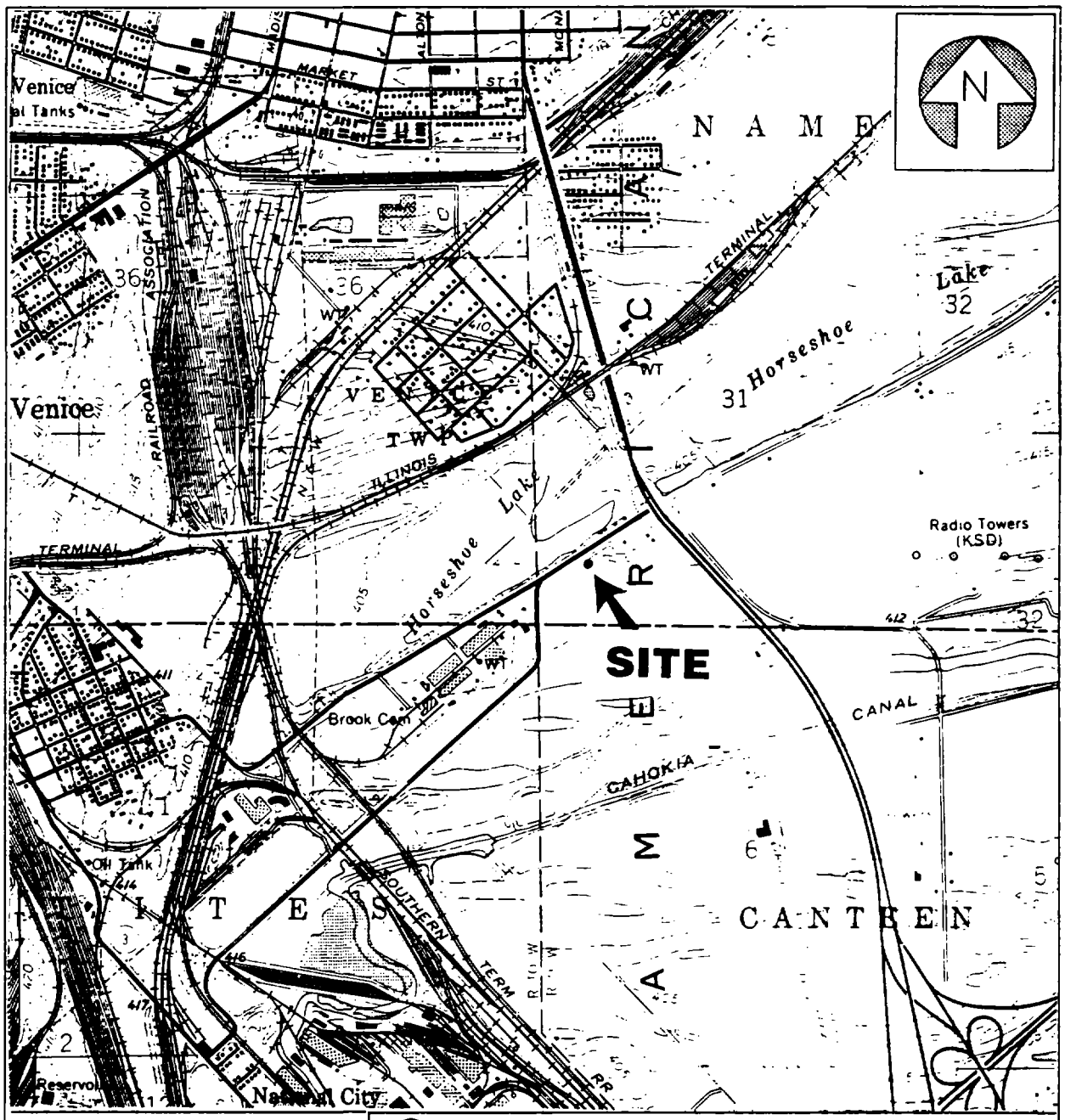
The IW site is an open dump located on Bend Road, north of National City and East St. Louis, Illinois (38° 39′ 43" North, 90° 08′ 45" West) (Figure 1).

The site is located in a mixed residential, agricultural, and light industrial area. The site is bordered to the north by Bend Road, and to the south, west, and east by agricultural and open land. The nearest residence is located approximately 0.2 miles east of the site on Bend Road. Horseshoe Lake is located approximately 0.1 mile north of the site.

2.2 SITE HISTORY

The IW site was discovered on August 31, 1988, during an Illinois Environmental Protection Agency (IEPA) investigation of a used tire and general refuse dump located on the same property. A total of seventy-eight 55-gallon drums of waste were discovered on site. IEPA contracted to have the drums staged, sampled and overpacked during April 1989, and June 1990, by Riedel Environmental Services, Inc. (Riedel). Compatibility studies based on the field hazard categorization results obtained by Riedel indicated that the drums contained four types of wastes: base neutral solids, base neutral liquids, flammable organic solids, and organic solids. Although disposal options were investigated, the drums remained on site.

The St. Louis National Stock Yards Company is the legal owner of the site property and Mr. Isaiah Watson manages the property. According to state records, Mr. Watson reported that the waste has been on site for over twenty years, and he does no know the origin of the waste. State records from December 1990, indicate that minimal security existed at the site, and the overpacked drums were deteriorating due to exposure to the environment.



Quadrangle Location

ecology and environment, inc.
Technical Assistance Team
Region V

TITLE	SITE LOCATION MAP	FIGURE # 1
SITE	ISAIAH WATSON	
CITY	NATIONAL CITY STATE ILLINOIS	SCALE 1:24000
SOURCE	U.S.G.S. 7.5 minute series Granite City, IL Quadrangle	DATE 1954 REVISED 1982

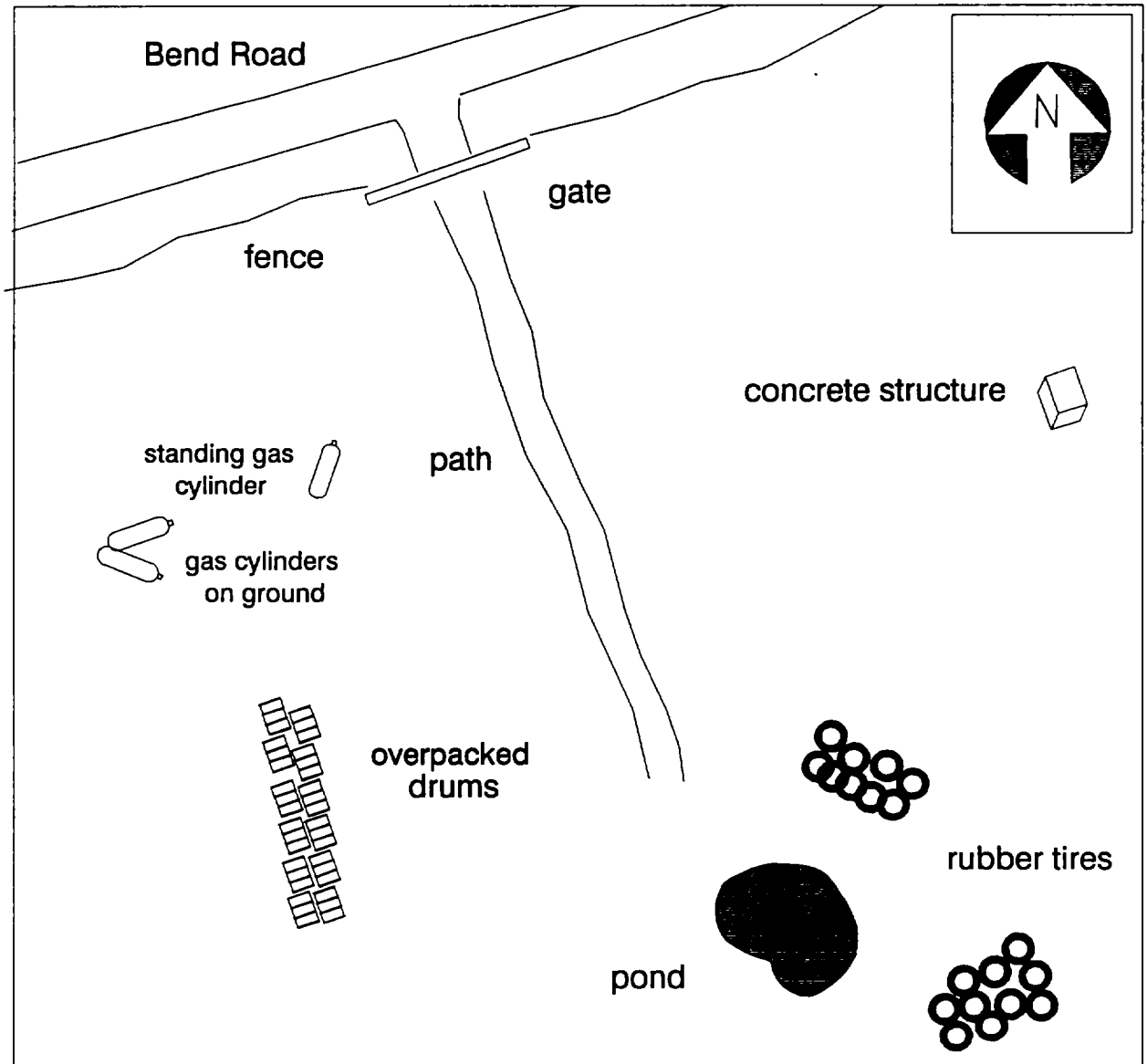
3. SITE ASSESSMENT

On January 7, 1994, E & E TAT members Michael Kulikowski and Debbie Poole, and U.S. EPA On-Scene Coordinator (OSC) Fred Bartman arrived at the IW site. The wooden gate on the north side of the site was closed; therefore, access to the site was gained through an open and unsecured area on the west of the site. The drums were observed on the southwest end of the site (Figure 2). The TAT inventoried a total of 81 drums instead of 78, the number reported by IEPA. The three additional drums could contain personal protective equipment worn by IEPA during sample collection activities. No distinguishing markings, except for drum numbers written by IEPA were observed on the drums. No leaking drums or stained soil was observed; however, complete observation of drums and soil was obstructed by snow cover.

Three drums were sampled at the request of the OSC. Sample S1 was collected from Drum #48; Sample S2 was collected from Drum #30; and Sample S3 was collected from Drum #76. The samples were collected at level B. A photoionization meter was used to monitor the headspace of the drums sampled, a reading of 50 parts per million above background was registered over Drum #48.

A reconnaissance of the remainder of the site was performed. During this activity, piles of used tires were found on the southeast end of the site. A pond is located adjacent to the tire piles. General refuse was scattered throughout the site, including a number of gas cylinders and large pieces of metal. A small concrete rectangular structure sits on the east side of the site; the purpose of this structure is unknown. The TAT photodocumented the site.

Samples were shipped via Federal Express to Coast to Coast Analytical Services in Indianapolis, Indiana, for volatile organic compounds, semivolatile organic compounds, and flash point analysis under TAT analytical TDD# T05-9401-802. Level II QA was requested along with a 14 calendar day verbal turnaround.



ecology and environment, inc.
Technical Assistance Team
Region V

TITLE SITE FEATURES MAP	FIGURE # 2
SITE ISAIAH WATSON	
CITY NATIONAL CITY STATE ILLINOIS	SCALE NOT TO SCALE
SOURCE E & E 1/7/94	DATE 1/20/94
	REVISED

4. ANALYTICAL RESULTS

Analytical results of the three samples collected at the IW site indicated elevated levels of volatile organic compounds including tetrachloroethene (72,000,000 micrograms per kilogram (µg/kg)), trichloroethene (710,000 µg/kg) and chlorobenzene (27,000 µg/kg) (Table 1) (Appendix B). All flash points were reported to be above 140°F. No semivolatile organic compounds were detected in any of the samples.

Table 1

ANALYTICAL DATA RESULTS
ISAIAH WATSON SITE
INDIANAPOLIS, INDIANA

Units = µg/kg

Parameter	Sample Designation			
	S1, upper phase	S1, lower phase	S2	S3
1,1-dichloroethene	ND	3,100	ND	ND
1,2-dichloroethene	ND	ND	57,000	62,000
chlorobenzene	200	20,000	27,000	2,600
ethylbenzene	82	1,200	5,500	3,600
tetrachloroethene	190,000	6,100,000	1,200,000	72,000,000
toluene	53	1,200	3,500	3,400
trichloroethene (TCE)	5,100	400,000	710,000	56,000
xylenes	460	16,000	36,000	26,000
Flash Point	203°F	194°F	194°F	185°F

ND = Not Detected.

Source: Coast to Coast Analytical Services, Indianapolis, Indiana under TAT Analytical TDD No. T05 9401-802.

5. DISCUSSION OF POTENTIAL THREATS

Conditions observed during the SA of the IW site that constitute a threat and may be used to determine the appropriateness of a removal action as outlined in Section 300.415(b)(2) of the NCP include:

- **Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants:**

The samples collected at the IW site contained elevated levels of chlorinated volatile organic compounds. Due to the deteriorated condition of the drums, there is a possibility that the materials contained could leak onto the ground and pose a direct contact threat to humans and wildlife.

Deleterious effects from chlorinated materials and other organic compounds are included in the following paragraphs. The information was obtained from toxicological profiles published by the United States Department of Health and Human Services.

Tetrachloroethene can rapidly enter the body through ingesting contaminated water or food containing the chemical. Animal studies have shown that high levels of tetrachloroethene can cause liver and kidney damage, liver and kidney cancers, and leukemia. Developmental effects in animal fetuses have also been documented. Based on these data, tetrachloroethene is believed to be capable of causing cancer in humans. Lower levels of tetrachloroethene can cause central nervous system effects.

Like tetrachloroethene, trichloroethene (TCE), can rapidly enter the body through ingestion of contaminated drinking water or food. Significant levels of TCE consumed by laboratory animals causes damage to the liver and kidneys, as well as some forms of cancer. Although no conclusive information is available regarding effects to humans, it can be concluded that TCE exposure may be harmful to human health.

Animals and humans can become exposed to chlorobenzene by drinking contaminated water, ingesting contaminated food, or through exposure of chlorobenzene-contaminated soil on the skin. Exposure to elevated concentrations of chlorobenzene in animals produces effects in the brain, liver, and kidneys. There are some, but not clear evidence of cancer risk. Chlorobenzene may produce similar effects in humans.

- **Hazardous substances or pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers, that may pose a threat of release:**

The 81 on-site drums are in a deteriorated condition. Continued exposure to adverse weather conditions may cause the drums to release their contents. The IW site is not properly fenced; therefore, trespassers could easily tamper with the on-site drums and cause a release.

- **Actual or potential contamination of drinking water supplies or sensitive ecosystems:**

Any material released from the drums could readily enter the subsurface soil and water table which could affect the local water supply or Horseshoe Lake. A cornfield lies directly west of the site; therefore, any harvested corn that incorporated these contaminants may be consumed by humans and/or livestock.

6. SUMMARY

Observations documented during the site assessment indicate that conditions at the IW site may constitute an imminent and substantial threat to human health and the environment. This conclusion is based on observations by the OSC and the TAT, as evaluated against the criteria set forth in the NCP.

There are 81 drums currently staged on site which contain various levels of chlorinated organic compounds. These compounds pose a definite health threat if released to the environment. The drums have been documented to be corroded and in poor structural condition. Access to the IW site is currently unrestricted. Mitigation of the threats described above requires the removal and disposal of the 81 drums.

APPENDIX A

SITE PHOTOGRAPHS

SITE NAME: ISAIAH WATSON

DATE: 1/7/94
TIME: 1100 HOURS

PHOTOGRAPHER: MICHAEL KULIKOWSKI

DIRECTION: SOUTHEAST

SUBJECT: PHOTO 1: PATH LEADING TO DRUMS

SITE NAME: ISAIAH WATSON

DATE: 1/7/94
TIME: 1101 HOURS

PHOTOGRAPHER: MICHAEL KULIKOWSKI

DIRECTION: NORTHEAST

SUBJECT: PHOTO 2: GAS CYLINDERS

SITE NAME: ISAIAH WATSON

DATE: 1/7/94
TIME: 1102 HOURS

PHOTOGRAPHER: MICHAEL KULIKOWSKI

DIRECTION: SOUTHWEST

SUBJECT: PHOTO 3: GAS CYLINDER

SITE NAME: ISAIAH WATSON

DATE: 1/7/94
TIME: 1103 HOURS

PHOTOGRAPHER: MICHAEL KULIKOWSKI

DIRECTION: SOUTHWEST

SUBJECT: PHOTO 4: DEBRIS SOUTHWEST OF PATH

SITE NAME: ISAIAH WATSON

DATE: 1/7/94
TIME: 1104 HOURS

PHOTOGRAPHER: MICHAEL KULIKOWSKI

DIRECTION: SOUTH

SUBJECT: PHOTO 5: DRUMS AND NEARBY MOUND

SITE NAME: ISAIAH WATSON

DATE: 1/7/94
TIME: 1105 HOURS

PHOTOGRAPHER: MICHAEL KULIKOWSKI

DIRECTION: SOUTHWEST

SUBJECT: PHOTO 6: DRUMS NEAR TREE LINE

SITE NAME: **ISAIAH WATSON**

DATE: **1/7/94**
TIME: **1106 HOURS**

PHOTOGRAPHER: **MICHAEL KULIKOWSKI**

DIRECTION: **SOUTH**

SUBJECT: **PHOTO 7: DRUMS; PHOTO SHOT WHILE STANDING ON MOUND**

SITE NAME: **ISAIAH WATSON**

DATE: **1/7/94**
TIME: **1106 HOURS**

PHOTOGRAPHER: **MICHAEL KULIKOWSKI**

DIRECTION: **SOUTHWEST**

SUBJECT: **PHOTO 8: CONTINUATION OF DRUM LINE, FROM PHOTO 7**

SITE NAME: ISAIAH WATSON

DATE: 1/7/94
TIME: 1107 HOURS

PHOTOGRAPHER: MICHAEL KULIKOWSKI

DIRECTION: WEST

SUBJECT: PHOTO 9: CONTINUATION OF DRUM LINE, FROM PHOTOS 7 & 8

SITE NAME: ISAIAH WATSON

DATE: 1/7/94
TIME: 1108 HOURS

PHOTOGRAPHER: MICHAEL KULIKOWSKI

DIRECTION: SOUTHWEST

SUBJECT: PHOTO 10: CLOSE-UP SHOT OF DRUM 48, FRONT

SITE NAME: ISAIAH WATSON

DATE: 1/7/94
TIME: 1109 HOURS

PHOTOGRAPHER: MICHAEL KULIKOWSKI

DIRECTION: SOUTHWEST

SUBJECT: PHOTO 11: CLOSE-UP SHOT OF DRUM 30

SITE NAME: ISAIAH WATSON

DATE: 1/7/94
TIME: 1112 HOURS

PHOTOGRAPHER: MICHAEL KULIKOWSKI

DIRECTION: NORTHEAST

SUBJECT: PHOTO 12: TIRE PILE EAST OF DRUMS

SITE NAME: **ISAIAH WATSON**

DATE: **1/7/94**
TIME: **1113**

PHOTOGRAPHER: **MICHAEL KULIKOWSKI**

DIRECTION: **EAST**

SUBJECT: **PHOTO 13: CONTINUATION OF PAN SHOT OF TIRE PILE FROM PHOTO 12**

SITE NAME: **ISAIAH WATSON**

DATE: **1/7/94**
TIME: **1114 HOURS**

PHOTOGRAPHER: **MICHAEL KULIKOWSKI**

DIRECTION: **SOUTHEAST**

SUBJECT: **PHOTO 14: CONTINUATION OF PAN SHOT OF TIRE PILE FROM PHOTOS 12 & 13**

SITE NAME: ISAIAH WATSON

DATE: 1/7/94
TIME: 1115 HOURS

PHOTOGRAPHER: MICHAEL KULIKOWSKI

DIRECTION: NORTHEAST

SUBJECT: PHOTO 15: TIRE PILE LOOKING NORTHEAST FROM NEARBY POND

SITE NAME: ISAIAH WATSON

DATE: 1/7/94
TIME: 1116 HOURS

PHOTOGRAPHER: MICHAEL KULIKOWSKI

DIRECTION: EAST

SUBJECT: PHOTO 16: TIRE PILE EAST OF POND

ITE NAME: ISAIAH WATSON

ATE: 1/7/94
IME: 1117 HOURS

HOTOGRAPHER: MICHAEL KULIKOWSKI

IRECTION: SOUTHWEST

UBJECT: PHOTO 17: TIRE PILE

SITE NAME: ISAIAH WATSON

DATE: 1/7/94
TIME: 1120 HOURS

PHOTOGRAPHER: MICHAEL KULIKOWSKI

DIRECTION: EAST

SUBJECT: PHOTO 18: FRONT GATE & FENCE

SITE NAME: **ISAIAH WATSON**

DATE: **1/7/94**
TIME: **1121 HOURS**

PHOTOGRAPHER: **MICHAEL KULIKOWSKI**

DIRECTION: **SOUTHEAST**

SUBJECT: **PHOTO 19: FRONT FENCE, CONTINUATION OF PHOTO 18**

SITE NAME: **ISAIAH WATSON**

DATE: **1/7/94**
TIME: **1122 HOURS**

PHOTOGRAPHER: **MICHAEL KULIKOWSKI**

DIRECTION: **SOUTH**

SUBJECT: **PHOTO 20: FRONT FENCE, CONTINUATION OF PHOTOS 18 & 19**

SITE NAME: **ISAIAH WATSON**

DATE: **1/7/94**
TIME: **1124 HOURS**

PHOTOGRAPHER: **MICHAEL KULIKOWSKI**

DIRECTION: **SOUTHEAST**

SUBJECT: **PHOTO 21: FRONT GATE AND FENCE, NORTHWEST SIDE OF BEND ROAD**

SITE NAME: **ISAIAH WATSON**

DATE: **1/7/94**
TIME: **1125 HOURS**

PHOTOGRAPHER: **MICHAEL KULIKOWSKI**

DIRECTION: **SOUTH**

SUBJECT: **PHOTO 22: GATE & FENCE, NORTHWEST SIDE OF BEND ROAD, CONTINUATION OF PHOTO 21**

APPENDIX B

ANALYTICAL DATA PACKAGE

ecology and environment, inc.
111 WEST JACKSON BLVD., CHICAGO, ILLINOIS 60604, TEL. 312-663-9415
International Specialists in the Environment

M E M O R A N D U M

DATE: February 28, 1994

TO: Michael Kulikowski, Project Manager, E & E, Chicago, IL

FROM: David Hendren, TAT-Chemist, E & E, Chicago, IL

THRU: Mary Jane Ripp, TAT-Analytical Services Coordinator, E & E, Chicago, IL

SUBJ: **Organic Data Quality Assurance Review** for Isaiah Watson site, Madison County, Illinois

REF: Analytical TDD:T05-9401-802 Project TDD:T05-9401-003
Analytical PAN:EIL0825AAA Project PAN:EIL0825SAA

The data quality assurance review of 3 liquid (oil) samples collected from the site has been completed. Sample S1 was composed of 2 layers which were analyzed as individual samples (designated Top, Bottom Layers). Analyses for Volatile Organics (VOA) were performed by Coast to Coast Analytical Services, Indianapolis, Indiana, in accordance with USEPA SW-846 Method 8240.

The samples were numbered in the field as follows. The corresponding laboratory identification numbers are provided:

TAT Sample # corresponds to - >	Laboratory Sample #
S1-(Top Layer)	VK246-1
S2	VK246-2
S3	VK246-3
S1-(Bottom Layer)	VK246-4

Data Qualifications:

I. **Holding Time:** Acceptable

The samples were collected on 1/7/94, and analyzed on 1/13/94 and 1/14/94. The holding time criteria of 14 days from collection

to extraction (for non-aqueous liquids) was satisfied. The aqueous layer (bottom) of S1 was extracted within the 7 day limit for aqueous samples.

II. **GC/MS Tuning:** Acceptable

GC/MS tuning to meet ion abundance criteria using bromoflurobenzene (BFB) were acceptable and samples were analyzed within 12 hours of BFB tuning.

III. **Calibration:**

A. Initial Calibration: Qualified

A 5-point initial calibration was performed prior to analysis. All average relative response factors were greater than 0.05 except 2-butanone (0.025); therefore, positive values for 2-butanone are qualified as estimated (S1 Top) and flagged "J"; and non-detects in samples S2, S3, and S1 (Bottom) are qualified as rejected and flagged "R".

The percent relative standard deviations (%RSD) between response factors were less than 30% for all target analytes included in the 5-point calibration except for acetone (45.2%), acrylonitrile (44.7%), methylene chloride (30.1%), and trans-1,2-dichloroethene (35.0%). Of these compounds, only acetone was detected in the samples and; therefore, qualification was required. Positive values for acetone were judged to be rejected, however, as explained below in "Overall Assessment of Data For Use".

B. Continuing Calibration: Acceptable

The percent difference (%D) between initial and continuing calibration for VOA compounds were within the quality control criteria of less than or equal to 25% for all detected analytes.

IV. **Method Blank:** Acceptable

A method blank was analyzed for each matrix analyzed. No target analytes or contaminants were detected above the detection limit.

V. **Surrogate Recovery:** Acceptable

Although the percent recoveries of some surrogates exceeded the established quality control limits no qualification of the data was judged to be required due to inherent matrix interferences present in oil samples.

VI. **Matrix Spike/Matrix Spike Duplicate:** Not applicable

VII. **Internal Standards:** Acceptable

The established quality control criteria for the internal

standards area counts of -50% to +100% from the associated calibration standard was achieved. Retention times for the internal standards were within the ± 30 second control limit.

VIII. **Overall Assessment of Data For Use:**

Positive values for acetone in samples S1(Top) and S1(Bottom) were judged to be rejected due to poor mass spectral data. The laboratory used only one ion (mass 43) to confirm the presence of acetone which is unacceptable for identification. Therefore these values are flagged "R".

As a result of dilution due to matrix interferences, elevated detection limits were necessary for the oil samples.

The overall usefulness of the data is based on the criteria outlined in "Quality Assurance/Quality Control Guidance for Removal Activities" (OSWER 9360.4-01 April, 1990). Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data qualifiers and Definitions:

J - The associated numerical value is an estimated quantity because the reported concentrations were less than the contract required detection limit or quality control criteria were not met.

U - The material was analyzed for but was not detected. The associated numerical value is the sample quantitation limit.

R - The sample results are rejected (analyte may or may not be present) due to gross deficiencies in quality control criteria, Resampling and/or reanalysis is necessary for verification.

ANALYTICAL METHOD REPORT

EXCELLENCE IN ANALYSIS

S1-Top Layer *246- 1*
VOA HSL

HSL VOA Analysis by EPA Method 8240/8260
Extracted by EPA Method 5030 (Purge & Trap)

Client: Ecology & Environment, Inc.
111 W. Jackson Blvd. 12th Floor
Chicago, IL 60604

Project Name :	**Proj#ZT12051/EIL0825SSA**	**Date Analyzed :**	**01/13/94**
Sample Matrix :	**Oil**	**Time Analyzed :**	**1613**
Date Collected:	**01/07/94**	**Analyst :**	**BRJ**
Collected by :	**Client**	**Dilution Factor:**	**1**
Date Received :	**01/12/94**	**Date Reported :**	**02/01/94**
Date Extracted:		**Aliquot Size :**	

Compound Analyzed	Detection Limit (PQL)* µg/kg	Concentration µg/kg
1,1,1-Trichloroethane (TCA)	50	not detected
1,1,2,2-Tetrachloroethane	50	not detected
1,1,2-Trichloroethane	50	not detected
1,1-Dichloroethane	50	not detected
1,1-Dichloroethene	50	not detected
1,2-Dichloroethane (EDC)	50	not detected
1,2-Dichloropropane	50	not detected
2-Butanone (MEK)	500	4500
2-Chloroethylvinylether	250	not detected
2-Hexanone	500	not detected
4-Methyl-2-pentanone (MIBK)	500	not detected
Acetone	500	1600
Benzene	50	not detected
Bromodichloromethane	50	not detected
Bromoform	50	not detected
Bromomethane	250	not detected
Carbon Disulfide	50	not detected
Carbon Tetrachloride	250	not detected
Chlorobenzene	50	200
Chloroethane	250	not detected
Chloroform	50	not detected
Chloromethane	250	not detected
Dibromochloromethane	50	not detected
Ethylbenzene	50	82
Methylene Chloride	250	not detected
Styrene	50	not detected
Tetrachloroethene	1000	190000
Toluene	50	53
Trichloroethene (TCE)	100	5100
Vinyl Acetate	250	not detected
Vinyl Chloride	250	not detected
Xylenes	50	460
c-1,2-Dichloroethene	50	not detected
t-1,2-Dichloroethene	50	not detected
t-1,3-Dichloropropene	50	not detected
Surrogate Std.:	**1,2-Dichloroethane-d4 SS**	**102 % recovery**
Surrogate Std.:	**4-Bromofluorobenzene SS**	**102 % recovery**
Surrogate Std.:	**Toluene-d8 SS**	**104 % recovery**

ANALYTICAL METHOD REPORT

EXCELLENCE IN ANALYSIS

S2 *246- 2*

VOA HSL

HSL VOA Analysis by EPA Method 8240/8260
Extracted by EPA Method 5030 (Purge & Trap)

Client: Ecology & Environment, Inc.
111 W. Jackson Blvd. 12th Floor
Chicago, IL 60604

Project Name :	**Proj#ZT12051/EIL0825SSA**	**Date Analyzed :**	**01/14/94**
Sample Matrix :	**Oil**	**Time Analyzed :**	**1440**
Date Collected:	**01/07/94**	**Analyst :**	**BRJ**
Collected by :	**Client**	**Dilution Factor:**	**1**
Date Received :	**01/12/94**	**Date Reported :**	**02/01/94**
Date Extracted:		**Aliquot Size :**	

Compound Analyzed	Detection Limit (PQL)* mg/kg	Concentration mg/kg
1,1,1-Trichloroethane (TCA)	1	not detected
1,1,2,2-Tetrachloroethane	1	not detected
1,1,2-Trichloroethane	1	not detected
1,1-Dichloroethane	1	not detected
1,1-Dichloroethene	1	not detected
1,2-Dichloroethane (EDC)	1	not detected
1,2-Dichloropropane	1	not detected
2-Butanone (MEK)	10	not detected
2-Chloroethylvinylether	5	not detected
2-Hexanone	10	not detected
4-Methyl-2-pentanone (MIBK)	10	not detected
Acetone	10	not detected
Benzene	1	not detected
Bromodichloromethane	1	not detected
Bromoform	1	not detected
Bromomethane	5	not detected
Carbon Disulfide	1	not detected
Carbon Tetrachloride	5	not detected
Chlorobenzene	1	27
Chloroethane	5	not detected
Chloroform	1	not detected
Chloromethane	5	not detected
Dibromochloromethane	1	not detected
Ethylbenzene	1	5.5
Methylene Chloride	5	not detected
Styrene	1	not detected
Tetrachloroethene	625	1200
Toluene	1	3.5
Trichloroethene (TCE)	25	710
Vinyl Acetate	5	not detected
Vinyl Chloride	5	not detected
Xylenes	1	36
c-1,2-Dichloroethene	1	57
t-1,2-Dichloroethene	1	not detected
t-1,3-Dichloropropene	1	not detected
Surrogate Std.: 1,2-Dichloroethane-d4 SS		**118 % recovery**
Surrogate Std.: 4-Bromofluorobenzene SS		**107 % recovery**
Surrogate Std.: Toluene-d8 SS		**108 % recovery**

ANALYTICAL METHOD REPORT

EXCELLENCE IN ANALYSIS

S3 *246- 3*

VOA HSL

HSL VOA Analysis by EPA Method 8240/8260
Extracted by EPA Method 5030 (Purge & Trap)

Client: Ecology & Environment, Inc.
111 W. Jackson Blvd. 12th Floor
Chicago, IL 60604

Project Name :	**Proj#ZT12051/EIL0825SSA**	**Date Analyzed :**	**01/14/94**
Sample Matrix :	**Oil**	**Time Analyzed :**	**1525**
Date Collected:	**01/07/94**	**Analyst :**	**BRJ**
Collected by :	**Client**	**Dilution Factor:**	**1**
Date Received :	**01/12/94**	**Date Reported :**	**02/01/94**
Date Extracted:		**Aliquot Size :**	

Compound Analyzed	Detection Limit (PQL)* µg/kg	Concentration µg/kg
1,1,1-Trichloroethane (TCA)	1000	not detected
1,1,2,2-Tetrachloroethane	1000	not detected
1,1,2-Trichloroethane	1000	not detected
1,1-Dichloroethane	1000	not detected
1,1-Dichloroethene	1000	not detected
1,2-Dichloroethane (EDC)	1000	not detected
1,2-Dichloropropane	1000	not detected
2-Butanone (MEK)	10000	not detected
2-Chloroethylvinylether	5000	not detected
2-Hexanone	10000	not detected
4-Methyl-2-pentanone (MIBK)	10000	not detected
Acetone	10000	not detected
Benzene	1000	not detected
Bromodichloromethane	1000	not detected
Bromoform	1000	not detected
Bromomethane	5000	not detected
Carbon Disulfide	1000	not detected
Carbon Tetrachloride	5000	not detected
Chlorobenzene	1000	26000
Chloroethane	5000	not detected
Chloroform	1000	not detected
Chloromethane	5000	not detected
Dibromochloromethane	1000	not detected
Ethylbenzene	1000	3600
Methylene Chloride	5000	not detected
Styrene	1000	not detected
Tetrachloroethene	625000	72000000
Toluene	1000	3400
Trichloroethene (TCE)	1000	56000
Vinyl Acetate	5000	not detected
Vinyl Chloride	5000	not detected
Xylenes	1000	26000
c-1,2-Dichloroethene	1000	62000
t-1,2-Dichloroethene	1000	not detected
t-1,3-Dichloropropene	1000	not detected
Surrogate Std.:	**1,2-Dichloroethane-d4 SS**	**109 % recovery**
Surrogate Std.:	**4-Bromofluorobenzene SS**	**115 % recovery**
Surrogate Std.:	**Toluene-d8 SS**	**111 % recovery**

ANALYTICAL METHOD REPORT

EXCELLENCE IN ANALYSIS

S1-Bottom Layer *246- 4*
VOA HSL

HSL VOA Analysis by EPA Method 8240/8260
Extracted by EPA Method 5030 (Purge & Trap)

Client: Ecology & Environment, Inc.
111 W. Jackson Blvd. 12th Floor
Chicago, IL 60604

Project Name :	**Proj#ZT12051/EIL0825SSA**	**Date Analyzed :**	**01/13/94**
Sample Matrix :	**Oil**	**Time Analyzed :**	**1412**
Date Collected:	**01/07/94**	**Analyst :**	**BRJ**
Collected by :	**Client**	**Dilution Factor:**	**1**
Date Received :	**01/12/94**	**Date Reported :**	**02/01/94**
Date Extracted:		**Aliquot Size :**	

Compound Analyzed	Detection Limit (PQL)* µg/kg	Concentration µg/kg
1,1,1-Trichloroethane (TCA)	1000	not detected
1,1,2,2-Tetrachloroethane	1000	not detected
1,1,2-Trichloroethane	1000	not detected
1,1-Dichloroethane	1000	not detected
1,1-Dichloroethene	1000	3100
1,2-Dichloroethane (EDC)	1000	not detected
1,2-Dichloropropane	1000	not detected
2-Butanone (MEK)	10000	not detected
2-Chloroethylvinylether	5000	not detected
2-Hexanone	10000	not detected
4-Methyl-2-pentanone (MIBK)	10000	not detected
Acetone	10000	13000
Benzene	1000	not detected
Bromodichloromethane	1000	not detected
Bromoform	1000	not detected
Bromomethane	5000	not detected
Carbon Disulfide	1000	not detected
Carbon Tetrachloride	5000	not detected
Chlorobenzene	1000	20000
Chloroethane	5000	not detected
Chloroform	1000	not detected
Chloromethane	5000	not detected
Dibromochloromethane	1000	not detected
Ethylbenzene	1000	1200
Methylene Chloride	5000	not detected
Styrene	1000	not detected
Tetrachloroethene	50000	6100000
Toluene	1000	1200
Trichloroethene (TCE)	10000	400000
Vinyl Acetate	5000	not detected
Vinyl Chloride	5000	not detected
Xylenes	1000	16000
c-1,2-Dichloroethene	1000	not detected
t-1,2-Dichloroethene	1000	not detected
t-1,3-Dichloropropene	1000	not detected
Surrogate Std.: 1,2-Dichloroethane-d4 SS		100 % recovery
Surrogate Std.: 4-Bromofluorobenzene SS		109 % recovery
Surrogate Std.: Toluene-d8 SS		117 % recovery

ecology and environment, inc.
111 WEST JACKSON BLVD., CHICAGO, ILLINOIS 60604, TEL. 312-663-9415
International Specialists in the Environment

M E M O R A N D U M

DATE: February 28, 1994

TO: Michael Kulikowski, Project Manager, E & E, Chicago, IL

FROM: David Hendren, TAT-Chemist, E & E, Chicago, IL DH

THRU: Mary Jane Ripp, TAT-Analytical Services Coordinator, E & E, Chicago, IL

SUBJ: **Organic Data Quality Assurance Review** for Isaiah Watson site, Madison County, Illinois

REF: Analytical TDD:T05-9401-802 Project TDD:T05-9401-003
Analytical PAN:EIL0825AAA Project PAN:EIL0825SAA

The data quality assurance review of 3 liquid (oil) samples collected from the site has been completed. Sample S1 was composed of 2 layers which were analyzed as individual samples (designated Top, Bottom Layers). Analyses for Semivolatile Organics (SVOA) was performed by Coast to Coast Analytical Services, Indianapolis, Indiana in accordance with USEPA SW-846 Method 8270.

The samples were numbered as follows in the field. The corresponding laboratory identification numbers are provided:

TAT Sample # corresponds to - >	Laboratory Sample #
S1-(Top Layer)	VK246-1
S2	VK246-2
S3	VK246-3
S1-(Bottom Layer)	VK246-4

Data Qualifications:

I. **Holding Time:** Acceptable

The samples were collected on 1/7/94, extracted on 1/13/94 and analyzed on 1/28/94. Dilutions of the sample extracts were analyzed

on 1/30/94 and 1/31/94. The holding time criteria of 14 days from collection to extraction(for non-aqueous liquids) was satisfied. The aqueous layer (bottom) of S1 was extracted within the 7 day limit for aqueous samples. All samples were analyzed within the 40 day limit following extraction.

II. **GC/MS Tuning:** Acceptable

GC/MS tuning to meet ion abundance criteria using decafluorotriphenylphosphine (DFTPP) was acceptable and samples were analyzed within 12 hours of DFTPP tuning.

III. **Calibration:**

A. Initial Calibration: Qualified

A 5-point initial calibration was performed prior to analysis. All average relative response factors were greater than 0.05 except benzidine (0.036). The percent relative standard deviations (%RSD) between response factors were less than 30% for all target analytes included in the 5-point calibration except for 1,2-dichlorobenzene(30.03%), 2,6-dinitrotoluene(54.97%), 4-chlorophenyl-phenylether(33.99%), benzidine(71.97%), and bis(2-ethylhexyl)phthalate(32.93%). Therefore positive values for bis(2-ethylhexyl)phthalate are flagged "J" in samples S1(Top), S2, and S3.

B. Continuing Calibration: Qualified

The percent difference (%D) between initial and continuing calibration for SVOA compounds were within the quality control criteria of less than or equal to 25% for all detected analytes, except bis(2-ethylhexyl)phthalate(30.74%), sample S1(Top), S2, and S3, which was flagged "J" already for failure of initial calibration.

IV. **Method Blank:** Acceptable

A method blank was analyzed for each matrix analyzed. No target analytes or contaminants were detected above the detection limit.

V. **Surrogate Recovery:** Acceptable

Although the percent recoveries of some surrogates exceeded the established quality control limits no qualification of the data was judged to be required due to inherent matrix interference of oil samples.

VI. **Matrix Spike:** Acceptable

The percent recoveries of the Matrix Spike was within the established quality control limits.

VII. **Internal Standards:** Acceptable

The established quality control criteria for the internal standards area counts of -50% to +100% from the associated calibration standard was achieved. Retention times for the internal standards were within the ± 30 second control limit.

VIII. **Overall Assessment of Data For Use:**

As a result of sample dilution due to matrix interferences, elevated detection limits were necessary for the oil samples.

The overall usefulness of the data is based on the criteria outlined in "Quality Assurance/Quality Control Guidance for Removal Activities" (OSWER 9360.4-01 April, 1990). Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data qualifiers and Definitions:

J - The associated numerical value is an estimated quantity because the reported concentrations were less than the contract required detection limit or quality control criteria were not met.

U - The material was analyzed for but was not detected. The associated numerical value is the sample quantitation limit.

ANALYTICAL METHOD REPORT

CCAS
EXCELLENCE IN ANALYSIS

S1-Top Layer *246- 1*
SVOA HSL
HSL Semi-Volatile Organics by EPA Method 8270
Extracted by EPA Method 3510/3540/3550/3580

Client: Ecology & Environment, Inc.
111 W. Jackson Blvd. 12th Floor
Chicago, IL 60604

Project Name :	**Proj#ZT12051/EIL0825SSA**	**Date Analyzed :**	**01/28/94**
Sample Matrix :	**Oil**	**Time Analyzed :**	**1354**
Date Collected:	**01/07/94**	**Analyst :**	**AA**
Collected by :	**Client**	**Dilution Factor:**	**10**
Date Received :	**01/12/94**	**Date Reported :**	**02/01/94**
Date Extracted:	**01/13/94**	**Aliquot Size :**	**1 uL**

Compound Analyzed	Detection Limit (PQL)* mg/kg	Concentration mg/kg
1,2-Dichlorobenzene	990	not detected
1,2-Diphenylhydrazine	990	not detected
1,3-Dichlorobenzene	990	not detected
1,4-Dichlorobenzene	990	not detected
2,4,6-Trichlorophenol	990	not detected
2,4-Dichlorophenol	990	not detected
2,4-Dimethylphenol	990	not detected
2,4-Dinitrophenol	4800	not detected
2,4-Dinitrotoluene	990	not detected
2,6-Dinitrotoluene	990	not detected
2-Chloronaphthalene	990	not detected
2-Chlorophenol	990	not detected
2-Methyl-4,6-dinitrophenol	4800	not detected
2-Methylphenol	990	not detected
2-Nitrophenol	990	not detected
3,3-Dichlorobenzidine	2000	not detected
4-Bromophenylphenylether	990	not detected
4-Chloro-3-methylphenol	2000	not detected
4-Chlorophenylphenylether	990	not detected
4-Methylphenol	990	not detected
4-Nitrophenol	4800	not detected
Acenaphthene	990	not detected
Acenaphthylene	990	not detected
Anthracene	990	not detected
Benzidine	4800	not detected
Benzo(a)anthracene	990	not detected
Benzo(a)pyrene	990	not detected
Benzo(b)fluoranthene	990	not detected
Benzo(ghi)perylene	990	not detected
Benzo(k)fluoranthene	990	not detected
Bis(2-chloroethoxy)methane	990	not detected
Bis(2-chloroethyl)ether	990	not detected
Bis(2-chloroisopropyl)ether	990	not detected
Bis(2-ethylhexyl)phthalate	990	9000 J
Butylbenzylphthalate	990	not detected
Chrysene	990	not detected
Di-n-butylphthalate	990	not detected

ANALYTICAL METHOD REPORT

CCAS
EXCELLENCE IN ANALYSIS

S1-Top Layer *246- 1*
SVOA HSL

HSL Semi-Volatile Organics by EPA Method 8270
Extracted by EPA Method 3510/3540/3550/3580

Client: Ecology & Environment, Inc.
111 W. Jackson Blvd. 12th Floor
Chicago, IL 60604

Project Name :	**Proj#ZT12051/EIL0825SSA**	**Date Analyzed :**	**01/28/94**
Sample Matrix :	**Oil**	**Time Analyzed :**	**1354**
Date Collected:	**01/07/94**	**Analyst :**	**AA**
Collected by :	**Client**	**Dilution Factor:**	**10**
Date Received :	**01/12/94**	**Date Reported :**	**02/01/94**
Date Extracted:	**01/13/94**	**Aliquot Size :**	**1 uL**

Compound Analyzed	Detection Limit (PQL)* mg/kg	Concentration mg/kg
Di-n-octylphthalate	990	not detected
Dibenzo(a,h)anthracene	990	not detected
Dibenzofuran	990	not detected
Diethylphthalate	990	not detected
Dimethylphthalate	990	not detected
Fluorene	990	not detected
Hexachlorobenzene	990	not detected
Hexachlorobutadiene	990	not detected
Hexachlorocyclopentadiene	990	not detected
Hexachloroethane	990	not detected
Indeno(1,2,3-cd)pyrene	990	not detected
Isophorone	990	not detected
N-Nitroso-di-n-propylamine	990	not detected
N-Nitrosodimethylamine	990	not detected
N-Nitrosodiphenylamine	990	not detected
Naphthalene	990	not detected
Nitrobenzene	990	not detected
Pentachlorophenol	4800	not detected
Phenanthrene	990	not detected
Phenol	990	not detected
Pyrene	990	not detected
Trichlorobenzene	990	not detected
Surrogate Std.: 2,4,6-Tribromophenol SS		53 % recovery
Surrogate Std.: 2-Fluorobiphenyl SS		120 % recovery
Surrogate Std.: 2-Fluorophenol SS		73 % recovery
Surrogate Std.: Nitrobenzene-d5 SS		76 % recovery
Surrogate Std.: Phenol-d6 SS		84 % recovery
Surrogate Std.: Terphenyl-d14 SS		100 % recovery

*(Practical Quantitation Limit)

ANALYTICAL METHOD REPORT

EXCELLENCE IN ANALYSIS

S2 *246- 2*

SVOA HSL

HSL Semi-Volatile Organics by EPA Method 8270
Extracted by EPA Method 3510/3540/3550/3580

Client: Ecology & Environment, Inc.
111 W. Jackson Blvd. 12th Floor
Chicago, IL 60604

Project Name :	**Proj#ZT12051/EIL0825SSA**	**Date Analyzed :**	**01/28/94**
Sample Matrix :	**Oil**	**Time Analyzed :**	**1448**
Date Collected:	**01/07/94**	**Analyst :**	**AA**
Collected by :	**Client**	**Dilution Factor:**	**10**
Date Received :	**01/12/94**	**Date Reported :**	**02/01/94**
Date Extracted:	**01/13/94**	**Aliquot Size :**	**1 uL**

Compound Analyzed	Detection Limit (PQL)* mg/kg	Concentration mg/kg
1,2-Dichlorobenzene	990	not detected
1,2-Diphenylhydrazine	990	not detected
1,3-Dichlorobenzene	990	not detected
1,4-Dichlorobenzene	990	not detected
2,4,6-Trichlorophenol	990	not detected
2,4-Dichlorophenol	990	not detected
2,4-Dimethylphenol	990	not detected
2,4-Dinitrophenol	4800	not detected
2,4-Dinitrotoluene	990	not detected
2,6-Dinitrotoluene	990	not detected
2-Chloronaphthalene	990	not detected
2-Chlorophenol	990	not detected
2-Methyl-4,6-dinitrophenol	4800	not detected
2-Methylphenol	990	not detected
2-Nitrophenol	990	not detected
3,3-Dichlorobenzidine	2000	not detected
4-Bromophenylphenylether	990	not detected
4-Chloro-3-methylphenol	2000	not detected
4-Chlorophenylphenylether	990	not detected
4-Methylphenol	990	not detected
4-Nitrophenol	4800	not detected
Acenaphthene	990	not detected
Acenaphthylene	990	not detected
Anthracene	990	not detected
Benzidine	4800	not detected
Benzo(a)anthracene	990	not detected
Benzo(a)pyrene	990	not detected
Benzo(b)fluoranthene	990	not detected
Benzo(ghi)perylene	990	not detected
Benzo(k)fluoranthene	990	not detected
Bis(2-chloroethoxy)methane	990	not detected
Bis(2-chloroethyl)ether	990	not detected
Bis(2-chloroisopropyl)ether	990	not detected
Bis(2-ethylhexyl)phthalate	990	20000 J
Butylbenzylphthalate	990	not detected
Chrysene	990	not detected
Di-n-butylphthalate	990	not detected

ANALYTICAL METHOD REPORT

EXCELLENCE IN ANALYSIS

S2 *246- 2*

SVOA HSL

HSL Semi-Volatile Organics by EPA Method 8270
Extracted by EPA Method 3510/3540/3550/3580

Client: Ecology & Environment, Inc.
111 W. Jackson Blvd. 12th Floor
Chicago, IL 60604

Project Name :	**Proj#ZT12051/EIL0825SSA**	**Date Analyzed :**	**01/28/94**
Sample Matrix :	**Oil**	**Time Analyzed :**	**1448**
Date Collected:	**01/07/94**	**Analyst :**	**AA**
Collected by :	**Client**	**Dilution Factor:**	**10**
Date Received :	**01/12/94**	**Date Reported :**	**02/01/94**
Date Extracted:	**01/13/94**	**Aliquot Size :**	**1 uL**

Compound Analyzed	Detection Limit (PQL)* mg/kg	Concentration mg/kg
Di-n-octylphthalate	990	not detected
Dibenzo(a,h)anthracene	990	not detected
Dibenzofuran	990	not detected
Diethylphthalate	990	not detected
Dimethylphthalate	990	not detected
Fluoranthene	990	not detected
Fluorene	990	not detected
Hexachlorobenzene	990	not detected
Hexachlorobutadiene	990	not detected
Hexachlorocyclopentadiene	990	not detected
Hexachloroethane	990	not detected
Indeno(1,2,3-cd)pyrene	990	not detected
Isophorone	990	not detected
N-Nitroso-di-n-propylamine	990	not detected
N-Nitrosodimethylamine	990	not detected
N-Nitrosodiphenylamine	990	not detected
Naphthalene	990	not detected
Nitrobenzene	990	not detected
Pentachlorophenol	4800	not detected
Phenanthrene	990	not detected
Phenol	990	not detected
Pyrene	990	not detected
Trichlorobenzene	990	not detected
Surrogate Std.: 2,4,6-Tribromophenol SS		53 % recovery
Surrogate Std.: 2-Fluorobiphenyl SS		110 % recovery
Surrogate Std.: 2-Fluorophenol SS		50 % recovery
Surrogate Std.: Nitrobenzene-d5 SS		93 % recovery
Surrogate Std.: Phenol-d6 SS		71 % recovery
Surrogate Std.: Terphenyl-d14 SS		100 % recovery

*(Practical Quantitation Limit)

ANALYTICAL METHOD REPORT

CCAS
EXCELLENCE IN ANALYSIS

S3 *246- 3*

SVOA HSL

HSL Semi-Volatile Organics by EPA Method 8270
Extracted by EPA Method 3510/3540/3550/3580

Client: Ecology & Environment, Inc.
111 W. Jackson Blvd. 12th Floor
Chicago, IL 60604

Project Name :	**Proj#ZT12051/EIL0825SSA**	**Date Analyzed :**	**01/28/94**
Sample Matrix :	**Oil**	**Time Analyzed :**	**1543**
Date Collected:	**01/07/94**	**Analyst :**	**AA**
Collected by :	**Client**	**Dilution Factor:**	**10**
Date Received :	**01/12/94**	**Date Reported :**	**02/01/94**
Date Extracted:	**01/13/94**	**Aliquot Size :**	**1 uL**

Compound Analyzed	Detection Limit (PQL)* mg/kg	Concentration mg/kg
1,2-Dichlorobenzene	990	not detected
1,2-Diphenylhydrazine	990	not detected
1,3-Dichlorobenzene	990	not detected
1,4-Dichlorobenzene	990	not detected
2,4,6-Trichlorophenol	990	not detected
2,4-Dichlorophenol	990	not detected
2,4-Dimethylphenol	990	not detected
2,4-Dinitrophenol	4800	not detected
2,4-Dinitrotoluene	990	not detected
2,6-Dinitrotoluene	990	not detected
2-Chloronaphthalene	990	not detected
2-Chlorophenol	990	not detected
2-Methyl-4,6-dinitrophenol	4800	not detected
2-Methylphenol	990	not detected
2-Nitrophenol	990	not detected
3,3-Dichlorobenzidine	2000	not detected
4-Bromophenylphenylether	990	not detected
4-Chloro-3-methylphenol	2000	not detected
4-Chlorophenylphenylether	990	not detected
4-Methylphenol	990	not detected
4-Nitrophenol	4800	not detected
Acenaphthene	990	not detected
Acenaphthylene	990	not detected
Anthracene	990	not detected
Benzidine	4800	not detected
Benzo(a)anthracene	990	not detected
Benzo(a)pyrene	990	not detected
Benzo(b)fluoranthene	990	not detected
Benzo(ghi)perylene	990	not detected
Benzo(k)fluoranthene	990	not detected
Bis(2-chloroethoxy)methane	990	not detected
Bis(2-chloroethyl)ether	990	not detected
Bis(2-chloroisopropyl)ether	990	not detected
Bis(2-ethylhexyl)phthalate	990	8800 J
Butylbenzylphthalate	990	not detected
Chrysene	990	not detected
Di-n-butylphthalate	990	not detected

ANALYTICAL METHOD REPORT

CCAS
EXCELLENCE IN ANALYSIS

S3 *246- 3*

SVOA HSL

HSL Semi-Volatile Organics by EPA Method 8270
Extracted by EPA Method 3510/3540/3550/3580

Client: Ecology & Environment, Inc.
111 W. Jackson Blvd. 12th Floor
Chicago, IL 60604

Project Name :	**Proj#ZT12051/EIL0825SSA**	**Date Analyzed :**	**01/28/94**
Sample Matrix :	**Oil**	**Time Analyzed :**	**1543**
Date Collected:	**01/07/94**	**Analyst :**	**AA**
Collected by :	**Client**	**Dilution Factor:**	**10**
Date Received :	**01/12/94**	**Date Reported :**	**02/01/94**
Date Extracted:	**01/13/94**	**Aliquot Size :**	**1 uL**

Compound Analyzed	Detection Limit (PQL)* mg/kg	Concentration mg/kg
Di-n-octylphthalate	990	not detected
Dibenzo(a,h)anthracene	990	not detected
Dibenzofuran	990	not detected
Diethylphthalate	990	not detected
Dimethylphthalate	990	not detected
Fluoranthene	990	not detected
Fluorene	990	not detected
Hexachlorobenzene	990	not detected
Hexachlorobutadiene	990	not detected
Hexachlorocyclopentadiene	990	not detected
Hexachloroethane	990	not detected
Indeno(1,2,3-cd)pyrene	990	not detected
Isophorone	990	not detected
N-Nitroso-di-n-propylamine	990	not detected
N-Nitrosodimethylamine	990	not detected
N-Nitrosodiphenylamine	990	not detected
Naphthalene	990	not detected
Nitrobenzene	990	not detected
Pentachlorophenol	4800	not detected
Phenanthrene	990	not detected
Phenol	990	not detected
Pyrene	990	not detected
Trichlorobenzene	990	not detected
Surrogate Std.: 2,4,6-Tribromophenol SS		49 % recovery
Surrogate Std.: 2-Fluorobiphenyl SS		120 % recovery
Surrogate Std.: 2-Fluorophenol SS		59 % recovery
Surrogate Std.: Nitrobenzene-d5 SS		94 % recovery
Surrogate Std.: Phenol-d6 SS		75 % recovery
Surrogate Std.: Terphenyl-d14 SS		100 % recovery

*(Practical Quantitation Limit)

ANALYTICAL METHOD REPORT

EXCELLENCE IN ANALYSIS

S1-Bottom Layer *246- 4*
SVOA HSL

HSL Semi-Volatile Organics by EPA Method 8270
Extracted by EPA Method 3510/3540/3550/3580

Client: Ecology & Environment, Inc.
111 W. Jackson Blvd. 12th Floor
Chicago, IL 60604

Project Name :	**Proj#ZT12051/EIL0825SSA**	**Date Analyzed :**	**01/31/94**
Sample Matrix :	**Oil**	**Time Analyzed :**	**0822**
Date Collected:	**01/07/94**	**Analyst :**	**AA**
Collected by :	**Client**	**Dilution Factor:**	**15**
Date Received :	**01/12/94**	**Date Reported :**	**02/01/94**
Date Extracted:	**01/14/94**	**Aliquot Size :**	**1 ul**

Compound Analyzed	Detection Limit (PQL)* µg/L	Concentration µg/L
1,2-Dichlorobenzene	750	not detected
1,2-Diphenylhydrazine	750	not detected
1,3-Dichlorobenzene	750	not detected
1,4-Dichlorobenzene	750	not detected
2,4,6-Trichlorophenol	750	not detected
2,4-Dichlorophenol	750	not detected
2,4-Dimethylphenol	750	not detected
2,4-Dinitrophenol	3800	not detected
2,4-Dinitrotoluene	750	not detected
2,6-Dinitrotoluene	750	not detected
2-Chloronaphthalene	750	not detected
2-Chlorophenol	750	not detected
2-Methyl-4,6-dinitrophenol	3800	not detected
2-Methylphenol	750	not detected
2-Nitrophenol	750	not detected
3,3-Dichlorobenzidine	1500	not detected
4-Bromophenylphenylether	750	not detected
4-Chloro-3-methylphenol	1500	not detected
4-Chlorophenylphenylether	750	not detected
4-Methylphenol	750	not detected
4-Nitrophenol	3800	not detected
Acenaphthene	750	not detected
Acenaphthylene	750	not detected
Anthracene	750	not detected
Benzidine	3800	not detected
Benzo(a)anthracene	750	not detected
Benzo(a)pyrene	750	not detected
Benzo(b)fluoranthene	750	not detected
Benzo(ghi)perylene	750	not detected
Benzo(k)fluoranthene	750	not detected
Bis(2-chloroethoxy)methane	750	not detected
Bis(2-chloroethyl)ether	750	not detected
Bis(2-chloroisopropyl)ether	750	not detected
Bis(2-ethylhexyl)phthalate	750	not detected
Butylbenzylphthalate	750	not detected
Chrysene	750	not detected
Di-n-butylphthalate	750	not detected

ANALYTICAL METHOD REPORT

EXCELLENCE IN ANALYSIS

S1-Bottom Layer *246- 4*
SVOA HSL
HSL Semi-Volatile Organics by EPA Method 8270
Extracted by EPA Method 3510/3540/3550/3580

Client: Ecology & Environment, Inc.
111 W. Jackson Blvd. 12th Floor
Chicago, IL 60604

Project Name :	**Proj#ZT12051/EIL0825SSA**	**Date Analyzed :**	**01/31/94**
Sample Matrix :	**Oil**	**Time Analyzed :**	**0822**
Date Collected:	**01/07/94**	**Analyst :**	**AA**
Collected by :	**Client**	**Dilution Factor:**	**15**
Date Received :	**01/12/94**	**Date Reported :**	**02/01/94**
Date Extracted:	**01/14/94**	**Aliquot Size :**	**1 ul**

Compound Analyzed	Detection Limit (PQL)* µg/L	Concentration µg/L
Di-n-octylphthalate	750	not detected
Dibenzo(a,h)anthracene	750	not detected
Dibenzofuran	750	not detected
Diethylphthalate	750	not detected
Dimethylphthalate	750	not detected
Fluoranthene	750	not detected
Fluorene	750	not detected
Hexachlorobenzene	750	not detected
Hexachlorobutadiene	750	not detected
Hexachlorocyclopentadiene	750	not detected
Hexachloroethane	750	not detected
Indeno(1,2,3-cd)pyrene	750	not detected
Isophorone	750	not detected
N-Nitroso-di-n-propylamine	750	not detected
N-Nitrosodimethylamine	750	not detected
N-Nitrosodiphenylamine	750	not detected
Naphthalene	750	not detected
Nitrobenzene	75	not detected
Pentachlorophenol	3800	not detected
Phenanthrene	750	not detected
Phenol	750	not detected
Pyrene	750	not detected
Trichlorobenzene	750	not detected
Surrogate Std.: 2,4,6-Tribromophenol SS		50 % recovery
Surrogate Std.: 2-Fluorobiphenyl SS		MI % recovery
Surrogate Std.: 2-Fluorophenol SS		MI % recovery
Surrogate Std.: Nitrobenzene-d5 SS		120 % recovery
Surrogate Std.: Phenol-d6 SS		MI % recovery
Surrogate Std.: Terphenyl-d14 SS		110 % recovery

*(Practical Quantitation Limit)

ecology and environment, inc.
111 WEST JACKSON BLVD., CHICAGO, ILLINOIS 60604, TEL. 312-663-9415
International Specialists in the Environment

M E M O R A N D U M

DATE: February 28, 1994

TO: Michael Kulikowski, Project Manager, E & E, Chicago, IL

FROM: David Hendren, TAT-Chemist, E & E, Chicago, IL

THRU: Mary Jane Ripp, TAT-Analytical Services Coordinator, E & E, Chicago, IL

SUBJ: **General Data Quality Assurance Review** for Isaiah Watson site, Madison County, Illinois

REF: Analytical TDD:T05-9401-802 Project TDD:T05-9401-003
Analytical PAN:EIL0825AAA Project PAN:EIL0825SAA

The data quality assurance review of 3 liquid (oil) samples collected from the site has been completed. Sample S1 was composed of 2 layers which were analyzed as individual samples (designated Top, Bottom Layers). Analysis for Flashpoint was performed by Coast to Coast Analytical Services, Indianapolis, Indiana.

The samples were numbered as follows in the field. The corresponding laboratory identification numbers are provided:

TAT Sample # corresponds to - >	Laboratory Sample #
S1-(Top Layer)	VK246-1
S2	VK246-2
S3	VK246-3
S1-(Bottom Layer)	VK246-4

I. Generic Validation:

Samples were collected on 1/7/94 and analyzed on 1/24/94. Associated quality control included the analysis of a recovery standard (89%) and a duplicate, which showed 5.4 % difference. A blank showed values less than detectable limits.

II.Overall Assessment of Data For Use:

The overall usefulness of the data is based on the criteria outlined in "Quality Assurance/Quality Control Guidance for Removal Activities" (OSWER 9360.4-01 April, 1990). Based upon the information provided, the data are acceptable for use.

LABORATORY REPORT

CCAS
EXCELLENCE
IN ANALYSIS

Client: Ecology & Environment, Inc.
111 W. Jackson Blvd. 12th Floor
Chicago, IL 60604
Mary Jane Ripp
(312)663-9415

Project Name: Proj#ZT12051/EIL0825SSA

Date Collected: January 7, 1994
Collected by : Client

Date Received: January 12, 1994
Date Reported: February 1, 1994

Client Sample ID: S1-Top Layer **Laboratory ID : VK246-1**
Matrix : Oil **Date Collected: January 7, 1994**

Analyte	Sample Type	Result	Detection Limit	Units	Method	Analyst	Date of Analysis	Time of Analysis	QA/QC Batch
SVOA HSL	Grab	Please refer to attached report sheets.							
VOA HSL	Grab	Please refer to attached report sheets.							
Flashpoint, O. C.	Grab	>95	1	°C	D92-85	DAA	01/24/94	1000	44465

Client Sample ID: S2 **Laboratory ID : VK246-2**
Matrix : Oil **Date Collected: January 7, 1994**

Analyte	Sample Type	Result	Detection Limit	Units	Method	Analyst	Date of Analysis	Time of Analysis	QA/QC Batch
SVOA HSL	Grab	Please refer to attached report sheets.							
VOA HSL	Grab	Please refer to attached report sheets.							
Flashpoint, O. C.	Grab	>90	1	°C	D92-85	DAA	01/24/94	1000	44465

Client Sample ID: S3 **Laboratory ID : VK246-3**
Matrix : Oil **Date Collected: January 7, 1994**

Analyte	Sample Type	Result	Detection Limit	Units	Method	Analyst	Date of Analysis	Time of Analysis	QA/QC Batch
SVOA HSL	Grab	Please refer to attached report sheets.							
VOA HSL	Grab	Please refer to attached report sheets.							
Flashpoint, O. C.	Grab	>85	1	°C	D92-85	DAA	01/24/94	1000	44465

Client Sample ID: S1-Bottom Layer **Laboratory ID : VK246-4**
Matrix : Oil **Date Collected: January 7, 1994**

Analyte	Sample Type	Result	Detection Limit	Units	Method	Analyst	Date of Analysis	Time of Analysis	QA/QC Batch
SVOA HSL	Grab	Please refer to attached report sheets.							
VOA HSL	Grab	Please refer to attached report sheets.							
Flashpoint, O. C.	Grab	>90	1	°C	D92-85	DAA	01/24/94	1000	44465

* LDL = Less Than Detection Limit

CASE NARRATIVE

SVOA SURROGATES FOR MATRIX SPIKE: Surrogate results with an # indicate that Base/Neutral surrogates appear to have been added twice to the sample.
The samples were run at dilutions due to strong matrix interference which resulted in higher detection limits. MI indicates matrix interference in the surrogate recoveries.

ANALYTICAL CHEMISTRY (FLASHPOINT): Temperature determined at point in which density changed rapidly and made analysis continuation impossible.

APPENDIX C

REMOVAL COST PROJECTION

APPENDIX C

REMOVAL COST PROJECTION
7 PAGES

HAS BEEN REDACTED

NOT RELEVANT TO THE SELECTION OF THE REMOVAL ACTION